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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,259	09/30/2002	Felice DiMascio	HAT-0016	5665

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EXAMINER
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NGUYEN, NGOC YEN M

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 11/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/065,259

Applicant(s)

DIMASCIO, FELICE

Examiner

Ngoc-Yen M. Nguyen

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,7-19 and 22-25 is/are pending in the application.
- 4a) Of the above claim(s) 13-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,7-12 and 22-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### DETAILED ACTION

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 4, 7-12, 17-19, 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sampson et al (US 2003/0064018).

Sampson '018 discloses a process for generating chlorine dioxide from chlorous acid which comprises contacting chlorous acid with a catalytic material in a moist environment for a time sufficient to form chlorine dioxide (note claim 1). The chlorous acid is produced by a process which comprises contacting a chlorite salt precursor with a cation exchange material in the hydrogen form in a moist environment for a time sufficient to form chlorous acid (note claim 2). In Examples 1-6, the chlorite concentration in the precursor solution was measured to be 823 mg/l (note paragraph [0050], this value is well within the claimed range of "less than about 10,000 milligrams of alkali metal chlorite per liter of solution".

Sampson '018 discloses that a commercially available strong acid organic cation resin in the hydrogen form can be used (note Example 1). However, other ion exchange materials, such as inorganic and organic resins, membranes, powders, gels and solutions are well known to those skilled in the art can be used. Examples of ion

Art Unit: 1754

exchange materials are weak acid cation resins and powder, strong acid cation resins and powders, etc. Selection of a particular ion exchange is considered within the skill of those knowledgeable in the field (note paragraph [0041]), thus, it would have been well within the skill of the artisan to optimize the crosslinking density of the ion exchange material in order to obtain the desired results.

Sampson '018 teaches that there are many catalysts that can be used, such as platinum, palladium, etc. Further, it is well known that depositing such catalysts on various substrates aids in the catalysis by increasing surface area. Such catalysts are commercially available, and it is within the scope of those skilled in the art to choose an appropriate catalytic material and/or substrate to catalyze chlorous acid to chlorine dioxide (note paragraph [0038]).

For the flow rate of the chlorite salt precursor, the crosslinking density of the cation exchange material, it would have been obvious to one of ordinary skill in the art to optimize these limitations in order to obtain the best results.

The difference not yet discussed is Sampson '018 does not teach the step of regenerate the cation exchange material.

However, the step of regenerating a cation exchange material is well known and conventional in the art to reuse the cation exchange material and minimize cost. It would have been obvious to one of ordinary skill in the art to optimize the regeneration process in order to effectively return the cation exchange material to the original state.

Applicant's arguments filed July 28, 2004 have been fully considered but they are not persuasive.

Art Unit: 1754

In the previous office action, for the 103 rejection, the claims "1-12 and 13-16" were rejected, however, the "13-16" was a typographical error because these claims were withdrawn from consideration. The claims under 103 rejection were 1-12 and 17-23.

Applicants argue that Sampson does not disclose a process wherein the cation exchange material has a crosslinking density greater than or equal to about 16%.

Even though Sampson does not specifically disclose that a cation exchange material that has a crosslinking density greater than or equal to about 16%, however, Sampson does teach that "selection of a particular ion exchange material is considered within the skill of those knowledgeable in the field" (note paragraph [0041]).

Furthermore, Applicants state that increasing the cross-linking density of the cation exchange materials has been found to increase the resistance of the cation exchange materials to potentially deleterious effects such as oxidation and degradation, however, such cross linking density has not been shown to have any special, unexpected effect for the process of producing halogen oxide and Applicants' claims do not require any operating lifetime for the cation exchange materials.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 1754

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc-Yen M. Nguyen whose telephone number is (571) 272-1356. The examiner is currently on Part time schedule.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Stan Silverman can be reached on (571) 272-1358. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed (571) 272-1700.

Application/Control Number: 10/065,259

Page 6

Art Unit: 1754

  
Ngoc-Yen M. Nguyen  
Primary Examiner  
Art Unit 1754

nmn

November 1, 2004